

"This book helped our school and university partnership to successfully communicate and implement action research within our schoolhouse. As a result, all stakeholders were aware of the value, potential, and outcomes of well thought-out classroom inquiry." —SHARON A. KEARNEY, principal, Sparks Elementary School, Maryland

"The information in this book takes the guess work out of classroom inquiry. Action research is helping me better meet the needs of my students." —RACHEL CARPENTER HELLER, teacher, Woodburn Elementary School, Morgantown, West Virginia

"By using the guidance provided in this book, I was able to decide on a topic and make sense of my action research results." —LAUREN MIKSA, second grade teacher, Mechanicsville Elementary School

Teachers are the single most important element in helping every child succeed in school. *Making Classroom Inquiry Work: Techniques for Effective Action Research* is designed to serve those who wish to delve deeper into their action research or as leaders in teacher research and reflective practice.

Robert P. Pelton is also the author of *Action Research for Teacher Candidates: Using Classroom Data to Enhance Instruction*, written in the hopes of equipping teachers-in-training with the skills needed for action research: a process that leads to focused, effective, and responsive strategies that help students succeed. These two books serve as both a perfect training curriculum for pre-service teachers at the undergraduate or graduate level and as an excellent vehicle for professional development for in-service teachers.

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MAKING CLASSROOM INQUIRY WORK

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Techniques for Effective Action Research

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CHAPTER THREE



Framing an Action Research Study

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“What makes for a good action research topic?” is not an easy question as you learn how to conduct action research. This question deals with issue identification, the first step in the action research model introduced in chapter 1. Your initial choice of action research focus, as mentioned in that chapter, can become a starting point in issue identification. This chapter helps you take that initial hunch or feeling and ask a set of four questions to give your choice a solid foundation.

Choosing an action research topic is frequently based on a new teaching strategy that you find interesting. However, an action research topic should focus first on the learning needs of your students and then on selecting a change in your teaching that helps those students. A good place to start is finding out what the learning priorities in your school are and making sure your action research addresses one of these priorities.

Classroom teachers use many, many strategies during the school day, and it is difficult to pinpoint exactly which one is working. Usually a blend of strategies is what ultimately makes a difference over time. Action research helps you identify student needs and learning outcomes and make a set of teaching decisions to help your students learn.

Chapter Objectives

By the time you finish reading and thinking about this chapter you will be able to do the following:

- Apply a four-question thinking process to help you frame your action research study
- Develop a focus for your action research
- Develop specific research questions based on your focus
- Identify data sources that help you answer your research questions
- Identify the grade-level issues that are inherent in your study

Framing Your Study

Those who have been involved in action research frequently use the term “framing a study” to label this phase of the action research process. Framing a study establishes boundaries to the study. A “bounded” study will be soundly based on students’ learning needs and propose procedures that are doable given the limited time you have in your teaching and learning environment. By framing a study you identify who the students are, what the learning challenges and priorities are, and what changes need to occur in your teaching for tomorrow! Thus the use of the word *action* in action research.

A frequently used strategy to prompt student performance is questioning. The use of questioning provides an opportunity for students to explain or demonstrate what they know or don’t know. Questioning in some way triggers the human brain to provide answers. This chapter uses four questions to help you frame your action research.

How This Chapter Is Organized

- Four questions to frame action research
- Prompts help you answer these four questions
- Develop an overall research focus
- Develop specific research questions that support this focus
- Identify data sources to answer your research questions
- Grade-level issues to framing an action research study
- Common issues to framing an action research study



The Big Picture: Four Guiding Questions to Frame Action Research

These are the four guiding questions:

1. *Why* do the study?
2. *Who* are the students?
3. *What* are the desired changes in student learning?
4. *How* does my teaching help students learn?

Guiding question 1: *Why* do the study?

Answering the *Why* question forces you to understand the school context in which you work. Your teaching and any action research you conduct *will* be influenced by the realities of this context. Your choice of a topic should address school priorities, specifically the needs of the students in your school.

Guiding question 2: *Who* are the students that might benefit from this action research?

Answering the *Who* question identifies the students’ grade level and the content area(s) for your inquiry. Your classroom includes a wonderful range of students, but not all have the same learning characteristics or face the same challenges. These differences in students present challenges for new and experienced teachers alike. One of the benefits of action research is that you will come to know your students better than before. In fact, the long-term value of action research is that it provides a process and a set of habits to continue learning *from* your students over time.

Guiding question 3: *What* are the desired changes in student learning?

Answering the *What* question focuses action research on student learning. This type of action research, sometimes referred to as an intervention study, examines how changes in your teaching practice assist student learning.

While there may be other purposes for action research, this chapter uses student learning to frame your action research. Consider what you have control over. Focus on what you can do in your classroom rather than taking on issues that can affect the whole school. For example, character education or after-school programs would require a significant amount of time to study and might be beyond your current capability.

Guiding question 4: *How* does my teaching help students learn?

Answering this *How* question identifies the changes you are planning to make in your teaching to help your students meet the identified learning outcomes. Generally this teaching change involves the adoption or adjustment of teaching strategies.

Even as a new teacher, you know that no single teaching strategy is sufficient to address all students. For new teachers, the principal focus for action research tends to be whether or not one or more teaching strategies are working. Effective action research, which addresses the reality of classroom

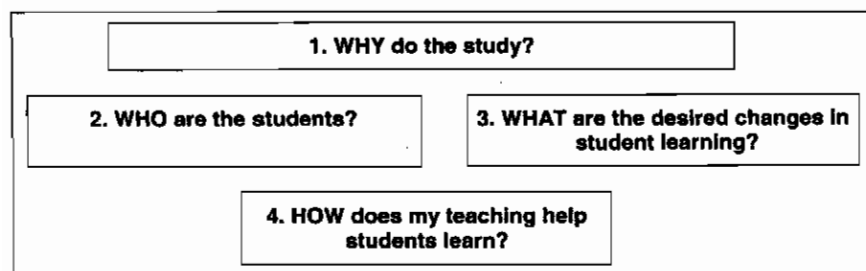


Figure 3.1. Four Questions to Frame Action Research

teaching, documents how a blend of strategies makes a difference. Figure 3.1 visually summarizes the four questions. This visual strategy is a common approach taken by many teachers to help their students “see” the relationships between concepts or ideas.

Answering the Four Questions to Frame Action Research

Chapter 1 mentioned that the most basic question of education is: *How well are my students learning what I am teaching?* The four questions just introduced will help you be clear about your choice of an action research topic, one that addresses specific student learning needs and specific teaching decisions to help these students. Chapter 1 also explained that action research provides an “organized, proven, and reliable process” to help you in your teaching. This chapter provides another systematic feature to guide you in choosing and framing your action research.

After answering these four guiding questions, you will be able to write specific research questions that frame your study. Once you figure out the research questions, then you can choose the data sources that will help you answer them. To help you answer the four questions, several prompts are provided and are depicted in figure 3.2.

Guiding question 1: Why do the study?

Again, your choice of an action research topic is not just about your desire to try out a new teaching strategy. Answering this WHY question helps you mentally negotiate the tension between your teaching interests and school priorities.

To answer question 1:

- Identify the specific student achievement priorities for the school and grade level.

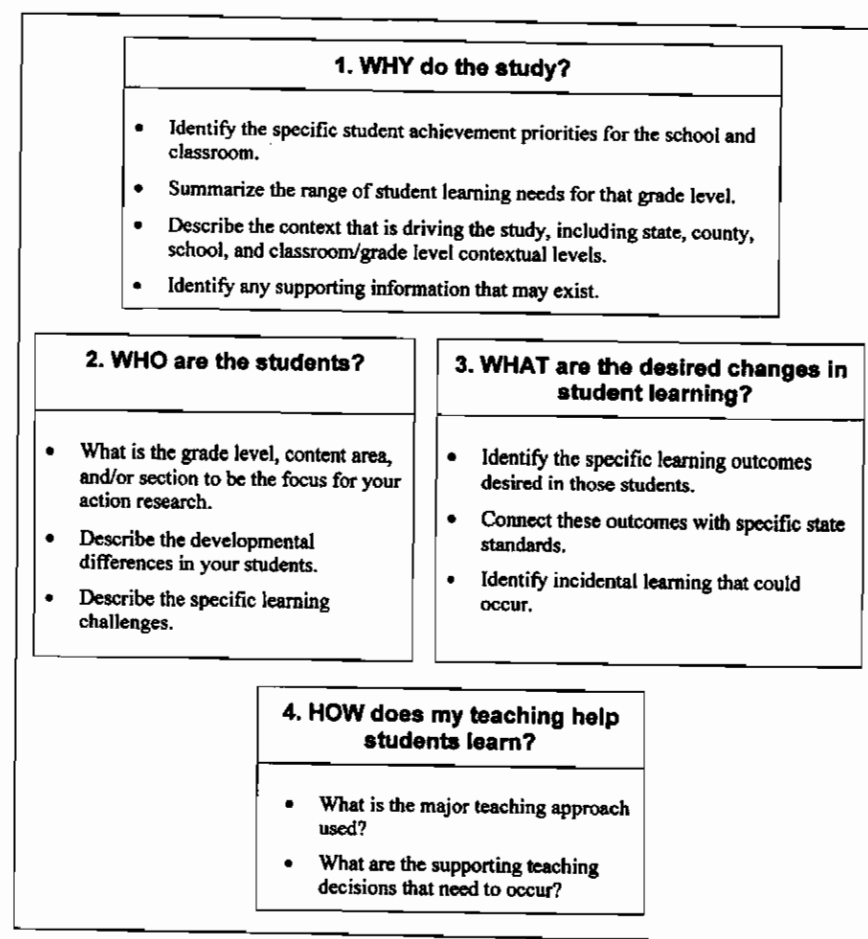


Figure 3.2. Answering the Four Questions

- In terms of these student achievement priorities, summarize the range of student learning needs for that grade level. Try to characterize the specific histories and community/family influences that may impact student learning.
- Describe the context that is driving your study. Briefly describe the latest state initiatives, county mandates, and school priorities, and prior attempts to address these priorities (see chapter 1).
- Identify any baseline information on student performance that may exist. This information may be found from individual teachers or official statewide test results.

Guiding question 2: *Who* are the students that might benefit from this action research?

Identify the specific grade level to focus your study on. Decide which content area you are interested in. At the elementary level, your action research might look at a teaching strategy across the entire school day, such as study skill strategies. In this case, your action research addresses study skills across different subjects. Usually, the action research focuses on a specific grade level and content area, such as reading or mathematics. At the secondary level, your action research might involve one or more sections of the same course. We address the question of who will be the students for action research at the end of this chapter.

Answering the grade/content prompt is sufficient for now. After you identify a topic it will be useful to return to this question and answer the second and third supporting items. Developmental differences include cognitive, physical, and social differences common to students at this grade level. Then, record the specific learning challenges experienced by students at this grade level and in this school. This knowledge will come from talking with your supervising teacher and your experience working with this grade level.

To answer question 2:

- Identify the specific grade level, content area, and/or course section that apply to your action research.
- Describe the developmental (cognitive, physical, and social) differences in your students.
- Describe the specific learning challenges faced by your students at this grade level and in this content area.

Guiding question 3: *What* are the desired changes in student learning?

The answer to question 3 will specify what students need to learn. The term *learning outcomes* is used here to characterize improvements in student learning. In terms of the classroom and student priorities you have identified, what changes do you and fellow teachers want to see in students? What knowledge, skills, or attitudes do your students need to learn? Changes in your teaching may also contribute to other forms of learning, such as developing character, behavior, or the self-awareness of one's learning. Are these outcomes necessary? If so, you should record them and be thinking about ways to assess them in your teaching.

Being clear about student learning outcomes is a necessity when you teach any activity, lesson, or unit. Your specified learning outcomes can now be

connected to your state standards. Being clear about learning outcomes and connecting these to state standards in your action research demonstrates how you are accountable to state standards and local school priorities.

To answer question 3:

- Identify the specific learning outcomes desired in the students.
- Connect these outcomes to state standards.
- Consider what other forms of learning might occur.

Guiding Question 4: *How* does my teaching help students learn?

Finally, question 4 addresses the teaching question. Initially, you can think about the major teaching strategy that you will use in your action research. For example, you may want to know if having students help each other (e.g., peer learning) makes a difference in helping them solve mathematical word problems. Of course, you realize that good teaching usually requires multiple strategies to reach different students. So your action research is about how different cooperative learning strategies may be used.

Now, list the other teaching decisions that will be necessary to support the major teaching strategy you have chosen. These changes can be organized by recording changes in the overall learning environment, classroom management (e.g., room organization, materials, behavioral policies, procedures, and routines), use of time, teacher activity and student activity, and including how assessment is accomplished in these activities.

To answer question 4:

- What is the major teaching approach you will be using?
- Describe the changes to be implemented to support this teaching strategy. Organize your changes in terms of the categories suggested below:
 - Learning environment
 - Classroom management
 - Time
 - Teacher activity
 - Student activity

To summarize, these four questions help you describe the complex setting that is the public school classroom, identify a full range of student characteristics, specify learning outcomes, and select multiple appropriate teaching strategies and their supporting assessments. Thinking through these

questions will help you select a topic for action research—one that is directly connected to student learning and is also interesting for you to study.

Once you have established the purpose for your action research by answering question 1, you can begin to see an overall focus. Answering questions 2, 3, and 4 frames your action research study in terms of this research focus.

Example

An example will be helpful to demonstrate how this is done (see figure 3.3). In this example, you have been placed in a third-grade classroom (question 2). Results of state testing revealed a shortcoming in math test scores, and the principal has directed teachers to work on improving these scores (question 3). In a meeting with the three third-grade teachers, one of the problem areas was that of mathematical word problems and the difficulties third graders have had in applying their math concepts to word problems.

Your mentoring teacher will work with you on developing this study, while the other third-grade teachers have agreed to implement the same study in their classrooms. In this way, all four of you will learn how to conduct teacher research, and more importantly, how changes in teaching will occur differently in the three classrooms.

For question 3, the third-grade teachers have identified word problems as a focus for the action research. Because the strategy of using peer learning has been proposed, the teachers realize that students working together is also an important learning outcome. So in addition to solving word problems, you can

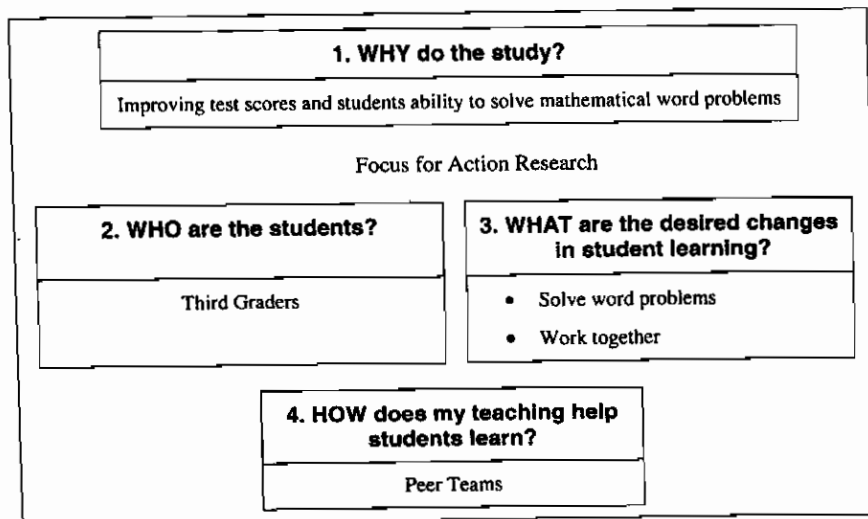


Figure 3.3. Examples Using Four Questions to Frame Action Research

add social learning to the list of learning outcomes. Specifically, the outcome is about helping students learn that they can work together in solving these word problems. In the discussions about the action research topic, teachers voice the possibility that group problem solving may be useful in other content areas. One teacher discusses her concern that student behavior will need to be addressed as students move out from their rows to conduct cooperative group activities.

Finally, for question 4, you bring up the idea of allowing students to work in teams, to learn from each other. The third-grade teachers have identified peer student teams as the primary change in teaching practice, although the question was raised about using other forms of cooperative learning. From the discussions on student behavior, the teachers realize that students will need lessons and practice in working together and setting up appropriate classroom management policies and procedures.

Action Research Focus

Now it is time to frame an action research focus. The way to do this is to combine the answers to questions 2, 3, and 4 in one sentence. So for our example, an action research focus would read as follow:

How do peer teams (How) help third-grade students (Who) solve mathematical word problems (What)?

Now you have a focus for your action research. Thus, the overall structure to framing a research focus takes the following form:

How does X *teaching strategy/change in teaching practice* help Y *students* achieve Z *learning outcomes*?

A summary of this approach is depicted in figure 3.4.

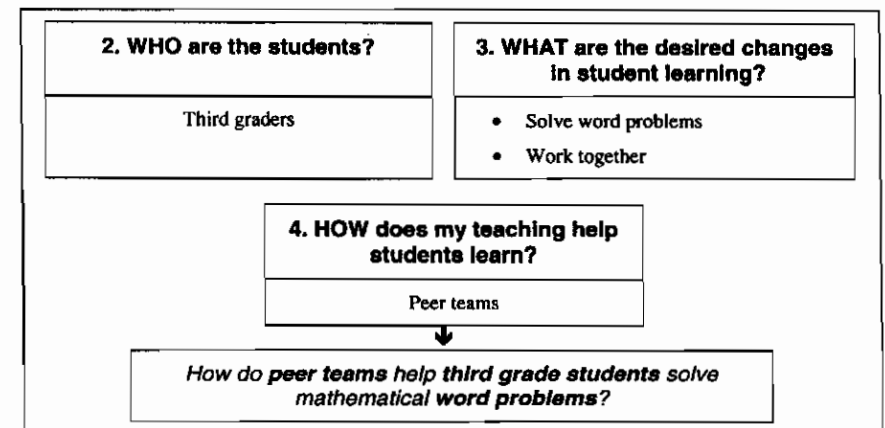


Figure 3.4. Visualizing a Research Focus for Action Research

Achieving a research focus is a major accomplishment and benchmark in conducting action research. Now you can take this direction and determine research questions. With research questions you can determine sources of data to answer these questions! Data collection is the second step in the action research model presented in chapter 1.

Framing Specific Action Research Questions and Data Sources

Research Focus and Data Sources

For some teachers, the overall research focus may turn out to be the research question! The next question you should ask yourself is *Can I answer this question?* Answering a research question involves analyzing sources of evidence, which we call data sources. A long-standing view is that data consists solely of numbers. Data sources can include the same tools you used to assess students as before, such as observations, tests, and student work. You can view assessments the same as data sources. The range of assessments, as you will come to realize, may also involve existing data on student performance. Existing data usually involves numbers such as scores on quizzes, test scores, or reading assessments. But existing data might include past student work, such as writing samples, math problems, project artifacts, or portfolios of student-created materials.

Bringing a Research Focus into Research Questions

It is frequently helpful to identify several research questions that support your overall focus. Why? The choice of research questions will greatly ease your choice of data sources to answer these questions, as you will soon see.

Let us continue the use of our word problem example. In your teacher meetings, one of the challenges third graders face involves *selecting relevant information* from a word problem and ignoring the nonrelevant information. A second challenge is coming up with a *procedure* to solve the problem and to *use mathematical operations*. You can now write a research question to address each issue and then think about one or more data sources that together help you answer each of the questions. Refer to figure 3.5 as we go. You reminded the other teachers that you want to find out whether *students can actually help each other* in identifying information in a word problem and then solve it. You can specify this as a third research question and then select one or more sources of data.

See how the above italicized challenges show up in the following three research questions:

Figure 3.5. Identifying Data Sources to Answer Research Questions

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- How do **peer teams** help **third grade students** solve mathematical **word problems**?
- RQ1:** How do peer teams help students to identify relevant problem solving information?
- **Data sources:** observation checklist, teacher journal
- RQ2:** How do peer teams help students to identify problem-solving approaches and use mathematical operations?
- **Data sources:** observation checklist, math journals; problem solving procedures, prompting questions
- RQ3:** How do peer teams work together and learn from each other during word problem activities?
- **Data sources:** teacher observation checklist, teacher questions on teams
-

- RQ1:** How do peer teams help students *identify relevant problem-solving information*?
- RQ2:** How do peer teams help students *identify problem-solving approaches and use mathematical operations*?
- RQ3:** How do peer teams *work together and learn from each other* during word problem activities?

Identifying Data Sources to Answer Research Questions

Now that you have research questions, the issue of data sources becomes relatively easy. Figure 3.5 records the data sources to answer each of these three research questions.

Research Question 1

Because you are using peer teaching/learning, a key source of assessment is through observation. To capture your observations, a *teacher observation checklist* is developed. A checklist provides a means to record what you remember during classroom teaching. Sometimes a *teacher journal* is used to record these observations, as well as other important memories of teaching. What will you be looking for in the observations to answer each of the research questions?

During your discussions with the other teachers you decide to have peer problem-solving teams made up of three students. Your aim is to mix student abilities and personalities. Each of you then develops observation items for what to look for in terms of identifying (1) relevant information in a word problem, (2) problem-solving approaches and mathematical operations, and (3) group behavior. What you now have is one data source that helps you answer research questions 1, 2, and 3. Again, refer to figure 3.5.

Research Question 2

You mention the use of math journals in which students record their work and respond to teacher prompts. Thus, student math journals become a second data source. The math journals assess students' choice of problem-solving approaches and math operations. The math journal can have students record their responses to your questions about their decisions.

Prompts such as these help reveal students' metacognitive abilities—how they become more self-aware of what they know and don't know and how they learn. Student work samples, such as these math journals, provide key sources of data in action research.

Research Question 3

An observation checklist records your observations of how students work with each other and how they talk about math. A checklist enables you to record observations on a regular basis. Include a space for comments, which can help you make teaching adjustments as well as make sense of (i.e., analyze) the observation checklist data. As a prompt to you, add a space asking yourself this question: "What class and individual adjustments do I need to make?" This question prompts you to take action in your teaching tomorrow.

You can also ask students about their problem-solving approaches and working in a team. Ask them these questions in their groups and hear what they say, and have them record their thoughts in their math journals. You get two ways of assessing what your students are thinking, both in the classroom and more reflective comments. You can begin to see that students' writing ability is also coming into play and could be itself a learning outcome for assessment, particularly if writing across the curriculum is a priority in your school.

Multiple Teaching Strategies = Triangulation

Breaking up your research focus into supporting questions not only helps you identify data sources but also reveals in your action research proposal the full range of your teaching decisions, including classroom management and assessment. Some beginning action researchers choose an action research study that is about the use of math journals, while in our example, the action research study involved math journals and observation checklists as data sources. The focus is on helping these students solve word problems, and math journals is but one teaching decision. The use of student pairs is another.

As you use different forms of assessment to inform you and your students as to their learning progress, the use of these assessments, particularly student work samples, provides different sources of evidence to answer your research question. In research this approach of using multiple data sources is called *tri-*

angulation. You are approaching your research question from different angles and improving the trustworthiness of your conclusions.

Summary

Answering four questions about your action research study helps you frame an overall research focus, develop supporting research questions, and select data sources to answer those questions!

Framing Issues across Grade Levels

This section addresses some of the issues on framing an action research study that differ across grade levels. Action research examples are provided in figures 3.6, 3.7, 3.8, and 3.9, at the end of each section.

Early Childhood Framing Issues

The preschool grade level tends to be a child-centered focus to the curriculum rather than subjects. Teaching at this grade level introduces children to taking responsibility for their behavior within the social setting of the public school and frequently addresses issues of parental attachment—being away from the comfort of family and the home. Another major area is emergent literacy and ways to establish letter recognition, writing, and personal expression. The teacher might spend a great deal of time developing and managing structured play activities. Assessment is primarily through observation. Data sources might include observation checklists or summaries of what students do in addition to the actual student work. Figure 3.6 illustrates a variety of early childhood framing questions.

The choice of an action research topic in preschool depends to a great extent on the suggestions from your supervising teacher involving specific student learning needs. The tendency is to choose a topic based on a teaching strategy, particularly at the preschool level where structured play keys on student activities. The choice of a change in teaching practice should, therefore, involve the use of multiple strategies. There is also the tendency to focus on one strategy and try to prove that this strategy is superior to others or to what the supervising teacher has done. Multiple strategies are always at play here. This choice will be discussed later in the next major section on general framing issues.

Elementary Grades Framing Issues

Elementary grades generally consists of kindergarten through fifth grade. Sometimes teachers organize for planning in terms of individual grade levels

Figure 3.6. Early Childhood Framing Questions

Action Research Focus/Questions	Study Challenges
Q1: Does the use of a visual model in vocabulary instruction help students to comprehend basic spatial concept words? Q2: Does this strategy help to increase frequency of these words in students' oral vocabulary? Q3: Does this strategy increase student engagement during vocabulary instruction?	Understanding students' developmental and learning challenges. 7-week study involving teaching 12 spatial concepts. Observation checklists and teacher journal notes are needed as observation is the assessment method.
How effective is puppetry in teaching preschool students strategies for conflict resolution?	Example of a study with multiple data sources: teacher journal, tally checklist, role play activity chart, student survey.
How does nonverbal communication impact student behavior?	This study involved a teacher candidate placement in both preschool and kindergarten. Cooperation of supervising teacher was necessary to gather data.

or professional development in pairs, such as K-1, 2-3, and 4-5. Kindergarten classrooms, while still child-centered much like preschool, have become increasingly subject-area focused. Those children who enter public school directly into kindergarten without preschool present the teacher with more challenges than those who have had preschool.

While elementary teachers tend to teach across all subject levels, beginning action researchers tend to focus on specific content area outcomes, such as math operations or story comprehension. In these grades, behavior remains an explicit learning outcome. Behavior is part of the "content" to be learned in an elementary grade classroom. Socialization with other children and within the school is always part of the school curriculum. In addition, children begin to see reading and behavioral experts assist the teacher in the classroom. Figure 3.7 illustrates a variety of elementary education framing questions.

Action research should be connected with your school's improvement plan. A school priority may be connected with federal or state mandates. One example is Response to Intervention (RtI), a way to identify student learning challenges and then respond at different instructional intervention levels, moving generally from whole-class instruction to groups and then to one-on-one interventions. Action research involving RtI would involve how teaching strategies were used to address student needs, such as reading or mathematics. RtI becomes a broad structure to organize interventions. Another broad approach might be the use of schoolwide themes and using

interdisciplinary activities to cover multiple state standards. Action research could then be used to document how your teaching practice achieved these standards in your classroom.

Teachers in the elementary levels use many teaching strategies during the school day, while teachers at the upper grades tend to adopt a few overall teaching strategies, such as direct instruction, discussion, or cooperative learning. General-purpose strategies for elementary grades include the use of learning stations, groups, and the use of technology.

Middle Grades Framing Issues

Action research across the middle school grades, which can vary in public schools to include grades 5-9, provides unique opportunities to document changes in student learning and performance and to better understand students in this developmental stage. Students in these grades seek a greater sense of their own identity and become more concerned with the social setting of the middle school, while at the same time coming to understand their place in the larger world. One of the keys to engaging students in the middle grades is to take advantage of their desire to be autonomous and social through hands-on activities that are related to their new interests.

Learning for middle school students shifts from the single elementary classroom to different rooms with specific content and subject area focus. Action research at the middle school grades takes on some of the same issues as for secondary grades, such as conducting a study in a specific content area and section. Research questions might be formulated that key in on behavioral and affective learning, such as the appreciation of literature, the valuing of different cultures, and the understanding of the complexity of the physical world and the living world.

Teaching strategies at the middle and secondary grade levels can be general teaching model approaches or they can involve content-specific teaching strategies. General teaching approaches can include direct instruction (DI), which features guided and individual practice. Inductive learning, in which students develop their own category system to understand topics and concepts, is an example of a cognitive strategy useful in reading (e.g., text predictions) and writing (e.g., organizing details and big ideas). Another type of teaching model focuses on inquiry and can be used not only in science but also in mathematics, social studies, reading, and writing. Social teaching models, such as cooperative learning, include a range of strategies from jigsaw and think-pair-share to work teams; they can be useful across all subjects, helping students learn concepts and problem-solving skills, but also working in groups. Figure 3.8 illustrates a variety of middle school education framing questions.

Figure 3.7. Elementary Education Framing Questions

Action Research Focus/Questions	Study Challenges
[K] Research Focus: How does prediction improve kindergarteners responses to oral comprehension questions after a read aloud? Q1: Which comprehension features do students use to recall setting, characters or main events? Q2: Which books support the students' ability to recall setting, characters and main events?	6 students Action researcher: <i>"Although my primary source of data collection was the story checklists, I was aware that having only one source of data would not in itself be sufficient to yield accurate and reliable results in my study; therefore, I also used four additional sources to collect and analyze data."</i>
[2 nd grade] Q1: How great is the effect of retell activities in relation to reading comprehension? Q2: Will oral strategies increase students' comprehension abilities more than written retell strategies?	Q1 could be improved: <i>"To what extent do retell activities improve 2nd grade learning comprehension.</i> Inconclusive results suggest an improvement in teaching, as here where the action researcher reported the need in her 12 week study to add oral assessment to the written assessment.
[4 th grade] Q1: Would implementing Literature Circles keep above-level readers on task during guided reading group with minimal teacher-guided instruction? Q2: Would the students be able to discuss story elements among themselves? Q3: Would the students be able to discuss ways in which they could relate the text to themselves and the text to another text? Q4: Would Literature Circle activities promote discussion of story elements and relating of text to self and text to text in student writing or reports?	Yes/No questions could be changed to "how" questions. Example of a belief in the teaching strategy, despite the findings of this study, which were inconclusive. Sometimes an action research study reveals incidental learning occurs, such as "sense of community" in this study.
[4-5 th] Q1: What effect will the integration of the arts have on students' attitudes towards social studies? Q2: What effect will the integration of the arts have on the test scores of the students? Q3: What effect will collaboration have on teaching?	Example of a broad teaching approach (arts integration) on a content area, and the overall interest of the researchers on teaching to the whole student, a broader view of teaching in action research. Two teacher candidates exploring how arts integration impacted students at two different schools. Teacher candidate: <i>"We plan to present this material to other teachers in hopes of continuing professional development and spreading enthusiasm for arts integration. To continue our voyage in becoming life-long learners, we wish to complete a longitudinal study based on our implementation and findings."</i>

Figure 3.8. Middle School Education Framing Questions

Action Research Focus/Questions	Study Challenges
[8 th MATH] Q1: Does the implementation of daily word problems for a warm up exercise increase student achievement? Q2: Does student confidence increase with daily word problem practice?"	Conducted across multiple middle school math section. Inclusive setting included students with special needs. Attitude surveys used to find out about student confidence.
[6 th LANGUAGE ARTS] Q1: If students were more involved in the assessment process and understood better how they would be graded, would they be more motivated to do well? Q2: Could grades increase because of the added knowledge and motivation? Q3: Would added knowledge of assessment through grading rubrics give students more ownership of their assessment outcomes?	These Yes/No questions could be changed to "how" questions. 6-week study in 4 different classrooms
[6 th grade MATH] What is the effect of the use of a graphic organizer during math instruction combined with repeated practice on accuracy and fluency of single digit multiplication facts for sixth grade students?	We discourage the use of the word "effect" as it is a "research" word and suggest the use of "how does..." Multiple data sources are helpful to provide different ways to answer a research question, as in this case, which included pre/post test, weekly quizzes, student journal prompts, and research journal.

Teaching strategies may also be content-specific, such as the use of concept maps and problem-based learning (PBL) for science, debates for social studies, and reading prompts useful in all content areas. Action research may involve specific topics within a content area or topics identified by other classroom teachers as being challenging for students. Examples of such topics could be specific mathematical concepts, such as fractions; science topics, such as electricity or biological systems; or specific types of writing, such as persuasive or essays. Study skills strategies may be useful topics for action research in the middle school to help these students develop a metacognitive awareness of how they learn. Technology use may become routine in the middle school classroom, as technology use becomes central in the lives of these students. Computers may be a central feature in the classroom, and they may also be used in lab settings.

Secondary Grades Framing Issues

Action research in the secondary grades (9–12) also centers on individual subjects, as teachers generally teach in one specific content area. The choice

for action research will be in a particular grade level and section focusing on a specific content-area topic. Action research can also be conducted across multiple sections, but it might be easier to learn how to conduct action research within a specific section and specific intervention. Action research might be involved in mixed-ability classes or low-achieving sections that would benefit from the inquiry.

Action research in the secondary grades may involve the learning of mathematical, scientific, psychological, and social concepts. Learning outcomes also develop skills such as writing persuasive essays, understanding different genres of literature, the use of the scientific method, web page design, or physical coordination. Integrated forms of outcomes may involve the understanding and appreciation of literature, and the development of writing skills and applying those skills in different forms of writing. Outcomes may also include working in teams and problem solving. The priority for action research is identifying student needs before thinking about the change in teaching practice.

To address these learning outcomes, you might choose a specific teaching strategy, such as the writing process, as a means to help students develop writing skills. You might use different forms of cooperative learning or involve numerous types of games. Which games help which students learn which knowledge or skills? Another example would be the development of study skills.

As we know that each student learns differently, an action research study might involve a range of study skills strategies, such as note-taking formats. Action research might also involve a broad category of teaching practice, such as problem-based learning (PBL). Another strategy decision would be the use of portfolios to assess the changes in student learning (developmental portfolio) or provide a way for students to demonstrate their best work across a unit or part of the school year (showcase portfolio). Technology use may also become a routine teaching strategy and a central feature of the secondary classroom. Action research could study the use of technology as a complementary strategy, rather than seeing if a technological approach is better than a traditional approach.

Classroom management issues remain a part of an action research study because they form part of the teaching decisions. Organization of materials and overall policies, rules, and procedures are just as important for the secondary teacher as for the elementary teacher. At the secondary level, the structure of the learning task or activity becomes a critical teaching decision (particularly with PBL)—explaining the rationale and relevance of the task, structuring the activity to provide clear directions, and providing clear

Figure 3.9. Secondary School Education Framing Questions

Action Research Focus/Questions	Study Challenges
[12 th grade civics] Q1: Will civic literacy writing assignments increase my student's knowledge of civic issues? Q2: Will students become more informed and involved with what is going on in the world around them? Q3: Will writing on topics that the students themselves select help them to become more engaged in classroom and in current news stories that are discussed in class?	Again, changing the questions from Yes/No to "how" frames the study to reveal the "ways" in which a strategy impacts students. Example of learning that takes place over time, such as attitudes.
[SPANISH II, III] Focus: Will teaching Spanish learners using an input processing approach and teaching the students effective comprehension strategies raise student test scores? Supporting questions: Q1: Will teaching students effective comprehension strategies for Spanish also increase student engagement during whole-class instruction? Q2: Will teaching students effective comprehension strategies for Spanish increase comprehension during class activities? Q3: Will teaching students effective comprehension strategies for Spanish increase participation of homework assignments?	Example of how supporting questions enables an overall research focus to be addressed. Action researcher: <i>"Doing action research has taught me more than I could have ever learned reading a book or sitting in a classroom. I was able to take into my own hands what I wanted to know from my classroom and my students. I was able to figure out what I knew very well about teaching and some things I need to work on about researching in the classroom and about teaching. My research indicated that using the input processing approach can be beneficial because all students seem to move at the same rate of achievement when instructional strategies are varied to provide for different learning styles."</i>
[11-12 th BIOLOGY] Is there a correlation between the implementation of weekly quizzes and the academic performance of high school anatomy students?	10 week study Results of this study, which were mixed, pointed toward the issue of students' attitude for a future study.

expectations for performance and clear criteria for assessment. The use of homework, for example, involving outside reading and practice, must be accompanied by consequences in the assessment plan.

Special Education Framing Issues

The focus of action research for the new special education teacher may involve how different forms of formal and informal assessment help the special education teacher and general education teacher understand individual

Figure 3.10. Special Education Framing Questions

Action Research Focus/Questions	Study Challenges
[1st, 2nd, 3rd Resource Room] How can interactive stations help a group of special needs students with reading comprehension?	Deciding what the learning stations' features should be and not making them overly complex.
[5 th Resource Room] RQ1: What type of graphic organizers do students with learning disabilities have the most success? RQ2: Which graphic organizers did students with learning disabilities like the most and feel most confident using?	3 students The action researcher learned from this action research that other factors can impact students' learning than a single strategy.
[3 rd] What effect will the use of the SPELLER strategy have on 3 rd grade students with learning disabilities?"	4 students with learning disabilities 6 weeks with 3 weeks traditional spelling strategy (memorization) and 3 weeks new strategy using picture cards, testing, auditory reinforcement. Supporting questions for many action research studies includes (a) learning and (b) student attitudes about the strategy.

students. Action research could be used to study how instructional interventions support a student's Individualized Education Plan (IEP). Action research could be used to study the different uses of assistive technology.

As opposed to action research in general education classrooms where all students are part of the research, special education teaching may include one-on-one with a small number of students. Action research might then address individual cases. Another possibility is co-teaching with the general education teacher, where all students are part of the study but individual cases might be described along with the entire class. In an elementary special education classroom, the action research might look similar to preschool action research, such as emergent literacy, social skills, and appropriate behavior.

Framing Issues Common to All Studies

This section addresses some of the common questions that beginning action researchers have for all studies.

Number of Students in a Study

Who should be a part of the study?

A long-standing view of "research" is the use of a control group in which that group of students or that class would receive one form of instruction

and another section or class would receive the new teaching. However, if you stop to think about this, giving one set of students one approach while giving another set of students a different approach poses some ethical questions. All students should receive the change in teaching practice. All students receive the same teaching, and one documents results by establishing where students start (a baseline of performance determined at the beginning the study) and seeing how students develop or progress over the length of the change in teaching practice, intervention, or use of one or more strategies.

While you implement changes in your teaching for *all* students, case studies of representative students are sometimes used in action research. Sampling students is a strategy to simplify your action research, which is helpful, particularly if you are new to the approach.

Length of Study

How long should I do the study?

A practical issue is determining when and how long a study should take place (this is a major concern for teacher candidates who are given responsibility for the classroom during a placement). Teacher candidates may be given increasing responsibility over several weeks. Baseline data can be gathered early in the school year to give you a starting point for student performance. As a preservice teacher is given more teaching time, you can implement a strategy. During this ramping up, you should orient yourself to the students and the new approach, such as grouping, learning stations, or PBL. In this way, students learn the specific rules and procedures for behavior and performance. New approaches may take some time to implement, particularly if the students are used to a specific approach.

Teachers who have completed action research have said that they now know "how to do action research." They frequently report that their strategy needed more time. Of greatest concern is generally the results. Your results, however, may be minimal or nonexistent. This may be due in part to the short time frame using the new teaching practice. Remember, your choice of strategies is a teaching decision based on what you as a teacher believe should be done for the benefit of students. Your informal and formal assessments of student progress provide the basis for change or moving on. A study of one to two weeks may not tell you much more than "this is what happened."

A study of at least five to six weeks is a general guideline, but this depends on how much time you have to implement your action plan, the complexity of the study, and the nature of the learning. If your action research is about developing skills, more time may be needed to learn basic skills and to apply these skills. If your action research involves

higher-order thinking, your students may need some weeks to develop this thinking and apply knowledge and skills. Frequently, higher-order thinking involves a level of attitude and appreciation. If your action research involves students' valuing something or coming to internalize a belief, such development will take time. Is your action research long enough to document such change, or do you need to think about making initial steps towards this performance?

Teaching Strategies

Is there a more effective teaching strategy than another?

Action research tries to help a teacher answer this question. However, action research is not about proving one strategy works better than another. Why? While this can be demonstrated in some studies, it is very difficult to prove that one strategy has finally been discovered to help students learn fractions, for example.

One of the things you will learn from conducting action research is being able to explain better than before the extent to which your teaching helped your students. Thus, action research is seen by some states and principals as one way to document teacher accountability. In the past, you may have had an overall sense of student performance based on observations or student work. The action research activity forces you to base your conclusions on actual data and to make sense of this data in ways you have not done before. Another term you might hear is *data-driven decision-making*. Action research is one way to accomplish this.

Action research can also document how the use of different strategies helps one type of student over another type or how different strategies might be more effective with specific concepts or skills. An example here is the use of note-taking strategies. A study might involve the use of different ways to take notes and see which note-taking strategy helps the students. With older students you can actually ask them about the effectiveness of the strategies, prompt them to think out loud about their use, and ask them to make suggestions for their future. Such a study is not about finding the one note-taking strategy but perhaps finding that X strategy works best for Y student about Z topic or idea.

Chapter Wrap-Up

Big Ideas of This Chapter

- To help with issue identification, the first step in the action research model, work through the four questions addressing issues of

action research purpose, students, learning outcomes, and teaching changes to help you frame an action research study into an overall research focus.

- Determine if additional research questions are needed.
- Identify sources of evidence to answer each research question.
- Teaching involves a blend of teaching strategies. Your action research study should tell the story of how your teaching practice needed to change to meet students' learning needs.

Immediate Benefits from This Chapter

- It keeps student learning in the forefront of your study.
- Answering the four questions enables you to frame a research focus and specific research questions.
- With specific research questions, you can determine data sources to answer those questions.
- You now have direct evidence to adjust tomorrow's teaching as well as to answer research questions.

Long-Term Benefits from This Chapter

- You and your supervising teacher gain experience in data-driven decision-making.
- Action research results provide a school with a localized knowledge base to build over time, as many student learning priorities require ongoing attention and replication studies may be needed.
- Some content areas, such as second language, may not be assessed by states, and action research provides a way to hold you accountable for your teaching in this area.

Questions for Review and Reflection

1. Adapt the four-question process discussed in this chapter to action research that involves a focus other than teaching intervention.
2. Which of the four questions do you know the least about? How will this level of awareness influence how you frame a study? What changes will you need to make?
3. Describe the likelihood that your study proposal might change. Discuss this possibility with your teacher.
4. What are your perceptions on the range of data sources you will use to answer your research questions?

5. What are some of the tensions and challenges that you have experienced so far with choosing an action research study? Share these issues with your peers.